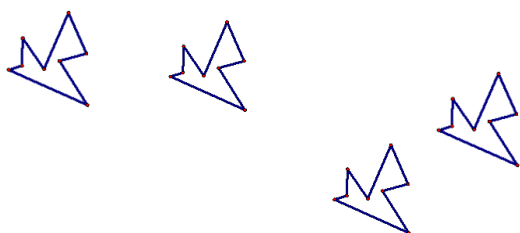


Ch 9 (including 4.8 and 6.7) Properties of Transformations

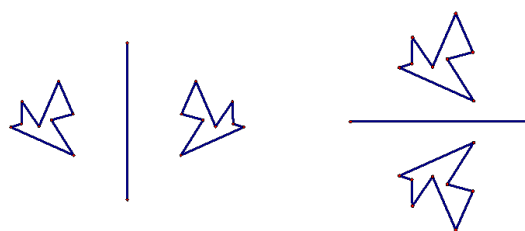
A transformation is an operation that moves or changes a geometric figure in some way to produce a new figure.

There are four main types of transformations: translations, reflections, rotations, and dilations.

A **translation** is a transformation that slides a figure. It moves every point of a figure the same distance in the same direction.



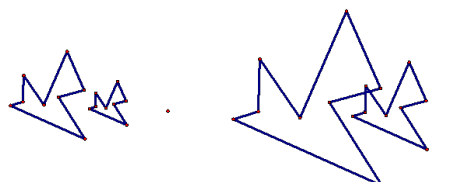
A **reflection** is a transformation that creates a mirror image. It flips the original across a line of reflection.



A **rotation** is a transformation that turns the original about a fixed point, known as the center of rotation.



A **dilation** is a transformation that stretches or shrinks a figure to create a similar one. It can be a **reduction** or an **enlargement**.



Vocabulary

Original figure is known as the preimage.

The figure that is produced is known as the image.

A transformation that preserves length and angle measure is an isometry.

Translations can be described using coordinates.

$$(x, y) \longrightarrow (x + a, y + b)$$

$$\text{Ex: } (x, y) \longrightarrow (x + 3, y - 2)$$

Translate the following points using the above translation.

$$A(4, 8) \rightarrow A'(-7, 6)$$

$$B(-5, 3) \rightarrow B'(-2, 1)$$

$$C(2, -6) \rightarrow C'(5, -8)$$

Write the translation mapping: $(7, 4) \longrightarrow (8, 10)$

$$(x, y) \longrightarrow (x + 1, y + 6)$$

Go to the website (not the app)
student.desmos.com
and wait for teacher code.

J3M5

HW
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